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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,938	03/09/2004	Ron Naftali	6317P024	4473

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EXAMINER	
LIU, MICHAEL	
ART UNIT	PAPER NUMBER
2882	
MAIL DATE	DELIVERY MODE
03/22/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/796,938	NAFTALI, RON	
	Examiner	Art Unit	
	Michael Liu	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 March 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5 and 7-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5 and 7-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 March 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Receipt is acknowledged of the Amendment filed on 04 March 2010. By the amendment, claims 1 and 5 have been amended, claims 2 and 6 have been canceled, and claim 9 has been newly added. Accordingly, claims 1, 3-5, and 7-9 are pending in the instant application.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04 March 2010 has been entered.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first cross-section and the second cross-section of claims 1, 3, 5, and 7 must be shown or the feature(s) canceled from the claim(s). If these features are already shown in the drawings, then they must be labeled. No new matter should be entered.

4. The drawings are objected to because in Fig 3, the label for step 124 is different from the description of step 124 in [0020] of the disclosure.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The amendments to the abstract have been considered, and accordingly, the previous objection to the specification is withdrawn.

6. The disclosure is objected to because of the following informalities: Claims 3 and 7 lack support from the specification. The specification does not teach "wherein the second cross-section is about half of the first cross-section."

Appropriate correction is required.

Claim Objections

7. Claim 5 is objected to because of the following informalities: The semicolon on line 6 of the claim should be deleted. Appropriate correction is required.

Double Patenting

8. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

9. Claim 9 is rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1 of prior U.S. Patent No. 7,341,823. This is a double patenting rejection.

Claim Rejections - 35 USC § 102

10. The claim amendments and Applicant's arguments are not persuasive, and as a result, the rejection under Fukuda is maintained. Upon further review, new rejections are applied under Meshulach and Lu.

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Meshulach (7,341,823).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Note: The priority date of the provisional application 60/454,855, which is 13 March 2003, has not been considered, as the provisional application does not provide the support for the limitations of claim 9, namely the terms "at least one beam of radiation having a fundamental frequency," "at least one third harmonic beam," and "wherein the radiation sensitive layer is sensitive to third harmonic radiation and is substantially not sensitive to radiation of the fundamental frequency." Therefore, the effective filing date of claim 9 of the instant application is 09 March 2004, which is the filing date of the instant application.

Meshulach discloses a method (120) (Fig 3) for recording a pattern, comprising:

determining an illumination scheme in response to the pattern (step 122); and

directing, in response to the determination, at least one beam of radiation (30) (Fig 1) having a fundamental frequency, via a medium (18), towards an intermediate layer (16), so as to excite at least one third harmonic beam (40) to propagate through at least a portion (45) of the intermediate layer towards a radiation sensitive layer (14), wherein the radiation sensitive layer is sensitive to third harmonic radiation and is substantially not sensitive to radiation of the fundamental frequency (step 124).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

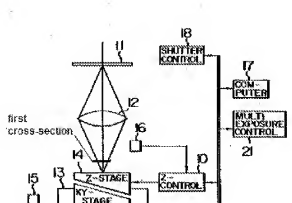
14. Claims 1, 3-5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al (4,904,569).

Claims 1, 5: Fukuda discloses a method (Fig 3) for recording a pattern (11), comprising:

determining an illumination scheme (by 21) in response to the pattern; and

directing, in response to the determination, at least one focused (C14L11-12) beam of radiation (C11L62-63: excimer laser) having a first cross-section (Drawing 1) onto an intermediate layer (44) (Fig 8c), said intermediate layer comprising a reversible transmission film (44), said reversible transmission film configured to allow only a portion of said beam, said portion having a second cross-section (Fig 8d: grooves between 46), to propagate towards a radiation sensitive layer (42), said second cross-section being smaller than the first cross-section.

FIG. 3



Drawing 1 Fig 3 with first cross-section labeled.

Fukuda does not disclose expressly the reversible transmission film being a saturable absorber.

However, [003] of the instant application states, "A material can be regarded as a saturable absorber if its light absorption decreases with increasing light intensity." Similarly, Fukuda teaches, in C13L43-50, "Further, the transparency of the reversible transmission film depends upon the quantity of exposure light. That is, when a large quantity of exposure light is incident on the reversible transmission film, the transparency thereof is high. While, when a small quantity of exposure light is incident on the reversible transmission film, the film is not so transparent." Based on these descriptions, a reversible transmission film acts as a saturable absorber, only allowing light transmittance under a large quantity of exposure light, or increasing light intensity.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to recognize that the reversible transmission film of Fukuda has

the same properties as a saturable absorber and could be used as such, for the purpose of forming sharp patterns to achieve devices with better performance.

Claims 3, 7: Fukuda discloses wherein the second cross-section (Fig 8d) is about half of the first cross-section (Drawing 1).

Claims 4, 8: Fukuda discloses wherein the controller is adapted to control an intensity of the beam of radiation to achieve a certain second cross-section. (C17L6-12: "Further, it is possible to cause the bleaching characteristic of the reversible transmission film to match with the sensitivity of the photoresist layer by appropriately selecting the exposure light quantity and the number of exposure operations, and hence the reversible transmission film can act as an efficient contrast enhancement layer.")

15. Claims 1, 3-5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (7,022,452).

Claims 1, 5: Lu discloses a method (15) (Fig 4) for recording a pattern (21), comprising:

determining an illumination scheme in response to the pattern (C3L38-39: inherent in photolithography); and

directing, in response to the determination, at least one focused beam of radiation (C4L31) having a first cross-section (at surface of 16) onto an intermediate layer (16), said intermediate layer comprising a contrast enhancing layer (16), said contrast enhancing layer configured to allow only a portion of said beam, said portion having a second cross-section (at surface of 10), to propagate towards a radiation sensitive layer (10), said second cross-section being smaller than the first cross-section.

Lu does not disclose expressly the contrast enhancing layer being a saturable absorber.

However, [003] of the instant application states, "A material can be regarded as a saturable absorber if its light absorption decreases with increasing light intensity." Similarly, Lu teaches, in C4L44-48, "Therefore, contrast enhancing layer 16 allows the high intensity portions of the aerial image ... to be preferentially transmitted to photoresist layer 10." Based on these descriptions, a contrast enhancing layer acts as a saturable absorber, only allowing light transmittance under high intensity portions of the radiation beam.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to recognize that the contrast enhancing layer of Lu has the same properties as a saturable absorber and could be used as such, for the purpose of forming sharp patterns to achieve devices with better performance.

Claims 3, 7: Lu discloses wherein the second cross-section is about half of the first cross-section (Fig 4).

Claims 4, 8: Lu discloses wherein the controller is adapted to control an intensity of the beam of radiation to achieve a certain second cross-section (Fig 5).

Response to Arguments

16. Applicant's arguments filed with respect to Fukuda have been fully considered but they are not persuasive. Applicant argues, "Fukuda fails to disclose a saturable absorber configured to allow only a portion of a focused beam having a first cross section to propagate towards a radiation sensitive layer" (P6L7-8). The examiner

respectfully disagrees. Fukuda teaches in C14L8-14 that the exposure operation is performed with the image of the mask pattern in focus. As a result, Fukuda discloses that the beam of radiation is in focus. Therefore, Fukuda discloses the limitations of claims 1 and 5. Applicant's arguments on this point are not persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Liu whose telephone number is 571-272-9019. The examiner can normally be reached on Monday through Friday 9 am - 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Liu/
03/13/10

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Examiner
Art Unit 2882

/Peter B. Kim/
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